

(FILE 'USPAT' ENTERED AT 08:14:54 ON 23 SEP 1997)

L1 1030 S ELASTIN  
L2 37 S TROPOELASTIN  
L3 3043 S CHROMOPHORE  
L4 87379 S TISSUE#  
L5 192235 S IRRADIATION OR RADIATION OR IRRADIATE OR RADIATE  
L6 367038 S FUSE OR FUSING OR BOND OR BONDING OR FUSED OR BONDED  
L7 0 S L2 AND L3 AND L4 AND L5 AND L6  
L8 28 S L1 AND L3 AND L4 AND L5 AND L6  
L9 11 S L2 AND L4 AND L5 AND L6  
L10 0 S L2 (25A) L4 (25A) L5 (10A) L6  
L11 0 S L1 (25A) L4 (25A) L5 (10A) L6  
L12 0 S L2 (25A) L4 (25A) L6  
L13 0 S L2 (25A) L4 (25A) L5  
L14 1 S L2 (25A) L4  
L15 0 S L2 (10A) L4  
L16 338 S L1 (25A) L4  
L17 179 S L1 (5A) L4  
L18 2 S L17 (25A) (L5 OR L6)

FILE 'JPOABS' ENTERED AT 08:34:56 ON 23 SEP 1997

L19 2 S ELATIN OR TROPOELASTIN  
L20 87 S ELASTIN OR TROPOELASTIN

FILE 'EPOABS' ENTERED AT 08:37:18 ON 23 SEP 1997

L21 3 S TROPOELASTIN

FILE 'USPAT' ENTERED AT 08:38:50 ON 23 SEP 1997

=> d 114;d 114 hit;d 18 28, 27, 23;d 19 11,6

1. ~~5,428,014~~ Jun. 27, 1995, Transglutaminase cross-linkable polypeptides and methods relating thereto; Virender Labroo, et al., 514/12, 13, 14, 15, 16; 530/324, 326, 327, 328, 329, 345, 350 :IMAGE AVAILABLE:

US PAT NO: 5,428,014 :IMAGE AVAILABLE:

L14: 1 of 1

SUMMARY:

BSUM(37)

As noted above, within one embodiment of the invention, copolymers of a first polypeptide monomer comprising a polypeptide that is cross-linkable by a transglutaminase and a second polypeptide monomer comprising a polypeptide capable of being nonenzymatically polymerized into soluble, biocompatible, bioadhesive polymers are disclosed. Polypeptides suitable for use as second polypeptide monomers can be derived from structural proteins having desirable physical characteristics. Preferred physical characteristics include the ability to bind **tissue** and the ability to form fibers. Suitable proteins in this regard include elastin, **tropoelastin**, collagen, silk, loricrin (Hohl et al., J. Biol. Chem. 266: 6626-6636, 1991), involucrin (Cell 46: 583-589, 1986 and Etoh et al., Biochem. Biophys. Res. Comm. 136: 51-56, 1986) fibronectin (for review see Yamada, Current Opinion in Cell Biology 1: 956-963, 1989; Sekiguchi et al., Proc. Natl. Acad. Sci. USA 77: 2661-2665, 1980),

thrombospondin (Zardi et al., EMBO J. 6:2337-3342, 1987; Gutman and Kornblihtt, Proc. Natl. Acad. Sci. USA 84: 7179-7182, 1987). Certain proteins, such as involucrin, collagen and silk have repeat peptide sequences that can be used as second polypeptide monomers within the polymers of the present invention. Preferred polypeptides include elastomeric polypeptides disclosed by Urry and Okamoto (U.S. Pat. Nos. 4,132,746 and 4,187,852; which are incorporated by reference herein in their entirety), Urry (U.S. Pat. Nos. 4,474,851; 4,500,700; and 5,064,430; which are incorporated by reference herein in their entirety) and Urry and Prasad (U.S. Pat. Nos. 4,783,523 and 4,970,055; which are incorporated by reference herein in their entirety). In this regard, polypeptides of the formulas Val-Pro-Gly-Val-Gly (SEQ ID NO:5), Ala-Pro-Gly-Val-Gly (SEQ ID NO:6), Gly Val Gly Val Pro (SEQ ID NO: 14) and Val-Pro-Gly-Gly (SEQ ID NO:7) are preferred. As will be evident to one skilled in the art, the adhesiveness of the copolymers may be increased by the incorporation of adhesive sequences into the second polypeptide monomer. Adhesive sequences can be obtained from any protein containing tissue-binding domains and include integrin binding sequences such as Arg-Gly-Asp. The copolymers of the present invention may also include additional types of polypeptide monomers that confer desirable physical characteristics to the copolymer such as increased tissue adhesion, increased tensile strength and/or increased elasticity. Within one embodiment of the invention, the copolymers include 1-6 additional types of polypeptide monomers. Such additional polypeptide monomers are different than the first and second polypeptide monomers, although they may confer similar characteristics.

28. ~~4,060,081~~, Nov. 29, 1977, Multilayer membrane useful as synthetic skin; Ioannis V. Yannas, et al., 602/49; 128/DIG.8; 424/444; 602/50, 58; 623/1, 2, 11, 25, 66 :IMAGE AVAILABLE:

27. ~~4,280,954~~, Jul. 28, 1981, Crosslinked collagen-mucopolysaccharide composite materials; Ioannis V. Yannas, et al., 530/356, 395; 606/229 :IMAGE AVAILABLE:

23. ~~5,292,362~~ Mar. 8, 1994, **Tissue bonding** and sealing composition and method of using the same; Lawrence S. Bass, et al., 106/173.01, 174.1, 181.1, 287.2, 287.21, 287.35; 427/2.24; 514/773, 776; 606/214 :IMAGE AVAILABLE:

11. ~~4,474,851~~, Oct. 2, 1984, Elastomeric composite material comprising a polypeptide; Dan W. Urry, 428/373, 374, 394, 395; 930/10 :IMAGE AVAILABLE:

6. ~~4,898,926~~, Feb. 6, 1990, Bioelastomer containing tetra/penta-peptide units; Dan W. Urry, 528/328; 204/403; 528/184, 327 :IMAGE AVAILABLE:

L28 ANSWER 1 OF 15 INPADOC COPYRIGHT 1997 EPO  
 AN 26747072 INPADOC UW 9736 UP 970913 EW 9736 ED 970913  
 TI ELASTIN, AND ELASTIN-BASED BIOMATERIALS AND PROCESS.  
 IN GREGORY, KENTON, W.; GRUNKEMEIER, JOHN  
 INS GREGORY KENTON W; GRUNKEMEIER JOHN  
 INA US  
 PA SISTERS OF PROVIDENCE IN OREGON; GREGORY, KENTON W.  
 PAS SISTERS OF PROVIDENCE IN OREGO; GREGORY KENTON W  
 PAA US  
 LA English  
 TL English; French; German  
 DT Patent  
 PIT EPA1 PUBL. OF APPLICATION WITH SEARCH REPORT  
 PI EP 792125 A1 970903  
 DS R AT; R BE; R CH; R DE; R DK; R ES; R FR; R GB; R GR; R IE; R IT; R  
 LI; R LU; R MC; R NL; R PT; R SE  
 AI EP 95-944462 A 950404  
 PRAI WO 95-US4236 W 950404 EWPR 9632 EDPR 960817  
 US 94-341881 A 941115 EWPR 9623 EDPR 960615

L28 ANSWER 2 OF 15 INPADOC COPYRIGHT 1997 EPO  
 AN 25081274 INPADOC UW 9645 UP 961116 EW 9623 ED 960615  
 TI ELASTIN, AND ELASTIN-BASED BIOMATERIALS AND PROCESS. ELASTIN,  
 AND ELASTIN-BASED BIOMATERIALS AND PROCESS.  
 IN GREGORY, KENTON, W.; GRUNKEMEIER, JOHN  
 INS GREGORY KENTON W; GRUNKEMEIER JOHN  
 INA US  
 PA SISTERS OF PROVIDENCE IN OREGON; GREGORY, KENTON, W.  
 PAS SISTERS OF PROVIDENCE IN OREGO; GREGORY KENTON W  
 PAA US  
 LA English  
 TL English; French  
 DT Patent  
 PIT WO A1 PUBL. OF THE INT. APPL. WITH INT. SEARCH REPORT  
 PI WO 9614807 A1 960523 100000  
 DS W AU; W BR; W CA; W CN; W JP; W KR; W MX; W SG  
 RW AT; RW BE; RW CH; RW DE; RW DK; RW ES; RW FR; RW GB; RW GR; RW  
 IE; RW IT; RW LU; RW MC; RW NL; RW PT; RW SE  
 AI WO 95-US4236 A 950404  
 PRAI US 94-341881 A 941115 EWPR 9623 EDPR 960615 \*  
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